fermi
national accelerator laboratory

TM-717
2900.000

N-5 HADRON CALIBRATION BEAM TO LAB "C"

A.Malensek

March 17, 1977

The beam uses the existing N-5 beam line[1] through the upstream end of Enclosure 109. The third focus has been moved from Enclosure 111 to the vicinity of Lab "E" - approximately 450-feet downstream. A physical layout of the beam is shown on the Area Plan on page 2. The magnets in Enclosure 109 have been placed on sliding bases that allow them to move eastward to accommodate the new beam. The bend points, envelopes, and a list of the elements are on pages 3, 4, and 5. The generation of the envelopes uses an initial beam off the 3T2 target of 0.05 inches, 0.33 milliradians horizontally by 0.02 inches. 0.28 milliradians vertically. The momentum is 150 GeV/c and the $\Delta P/P$ is 0.5%. The coordinate system used is the DUSAF system with 100,000 subtracted from the Z-component. In this system, the neutrino beam center line is at X = -0.667 feet. A combination of 8 inch and 12 inch pipe, and two bending magnets direct the beam to Lab "C". The details are:

Exposed pipe (8 inch): Enclosure 109 to Enclosure 111, 101 feet; Along Enclosure 111 - 36 feet; Berm End to magnets outside Lab "E" - 113 feet; magnets outside Lab "E" to Lab "C" - 331 feet; Enclosure 113 access - 3 feet.

Buried Pipe (12 inch): Enclosure 109 to Enclosure 111 - 55 feet; Enclosure 111 to Enclosure 113 access - 210 feet; Enclosure 113 access to Berm End - 88 feet.

[1] Lach, J. and Pruss, S. - Hadron Beams in the Neutrino Area, TM-285, January 25, 1971.

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FERMILAB

ENGINEERING NOTE

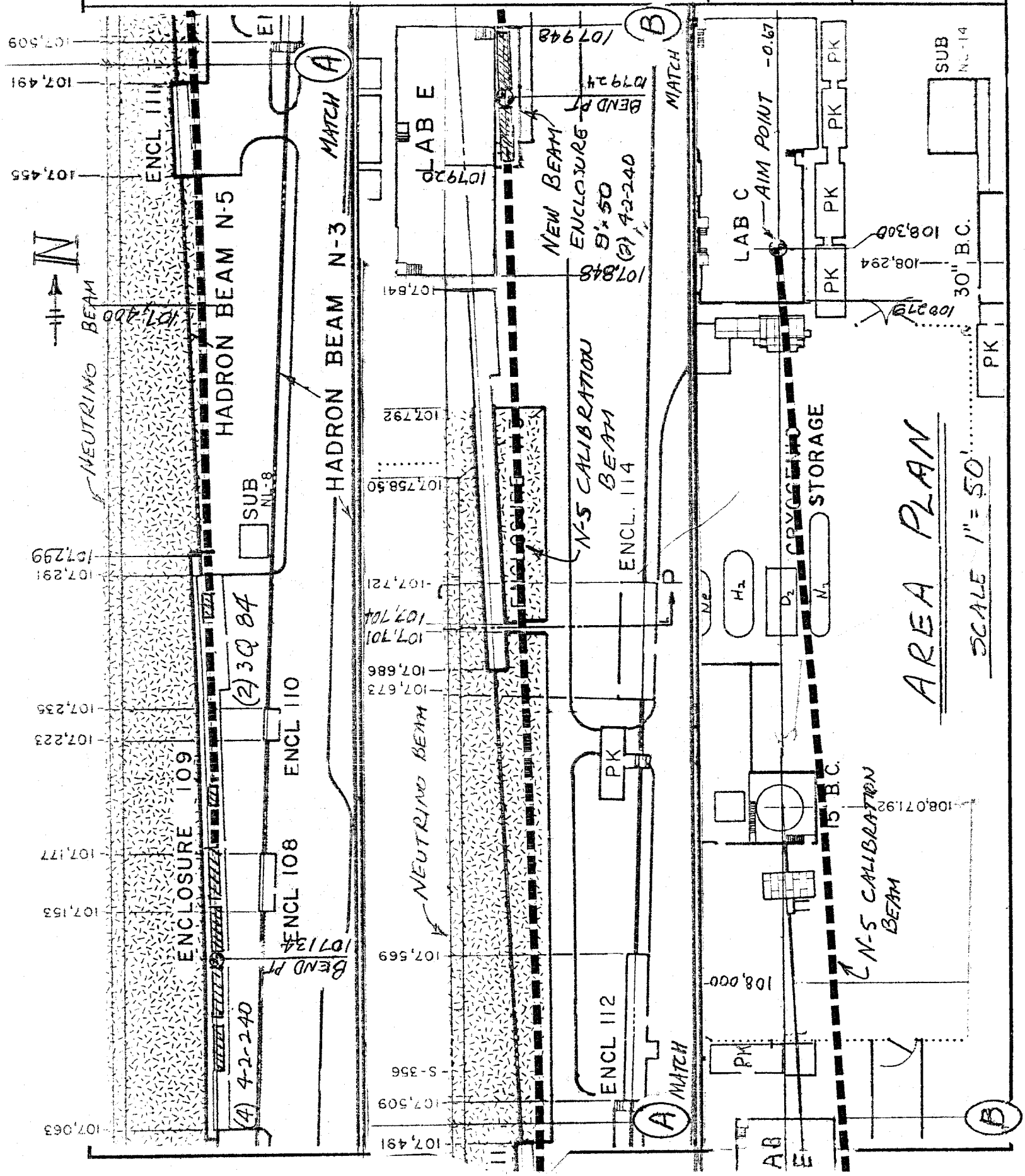
SECTION	PROJECT	SERIAL-CATEGORY	PAGE
Neutrino Dept.	N-5 Cal. Beam	TM-717 2900.000	2

SUBJECT: N-5 HADRON CALIBRATION BEAM TO LAB "C" 150 Gev/c Design from Enclosure 109 Area Plan

NAME: Wayne W. Nestander

DATE: 75-924 1 Oct. 75

REVISION DATE:



FERMILAB ENGINEERING NOTE	SECTION	PROJECT	SERIAL-CATEGORY	PAGE
	NEUTRINO		TM-717 2900.000	3

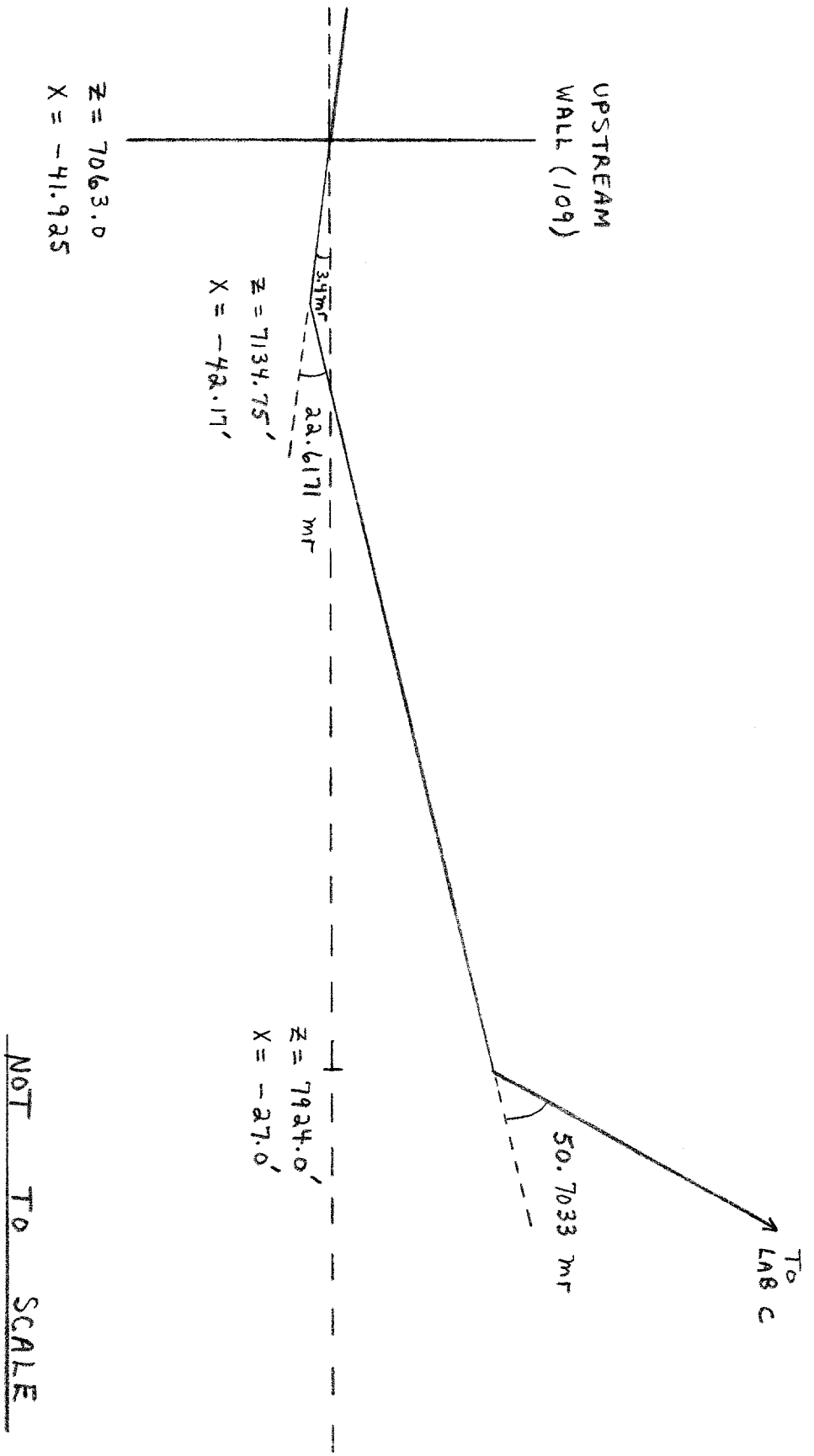
SUBJECT

N-5 HADRON CALIBRATION BEAM TO LAB "C"

NAME: A. Malensek

DATE: 3/17/77

REVISION DATE:



BEND POINTS

NOT TO SCALE

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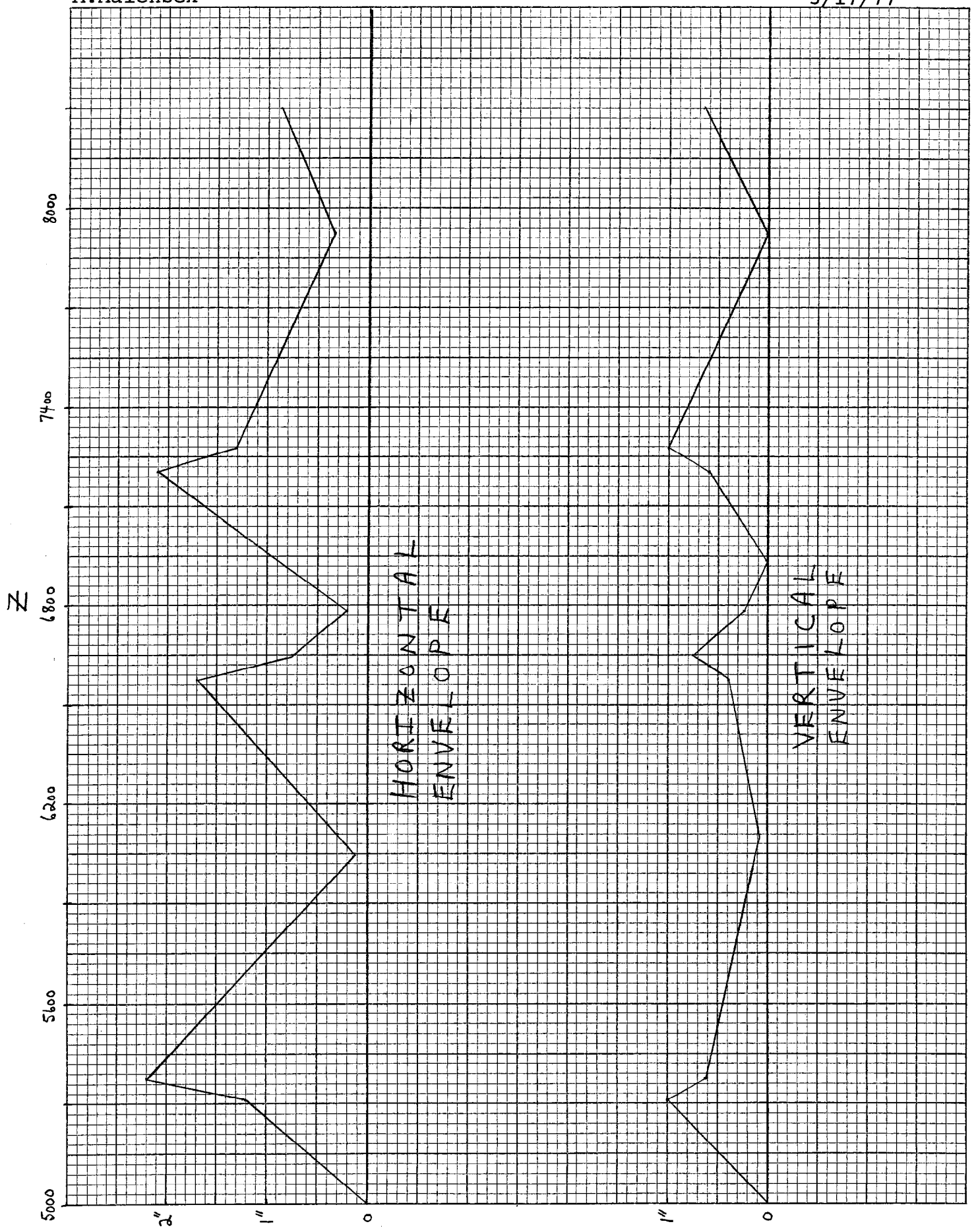
N
8000
7400
6800
6200
5600
5000
2"
1"
0
HORIZONTAL ENVELOPE
1"
0
VERTICAL ENVELOPE

Z CENTER (Ft)	X CENTER (Ft)	Y CENTER (Ft)	ELEMENT	TYPE
7063.0	-41.925	744.998	Enc. 109 wall	
7068.0	-41.942	"	5I09	Intensity Monitor
7102.5	-42.338	"	5W09-2	Bend 5-1.5-240
7124.0	-41.990	"	5W09-3	Bend 5-1.5-240
7145.5	-41.820	"	5W09-4	Bend 5-1.5-240
7167.0	-41.528	"	5W09-5	Bend 5-1.5-240
7203.5	-40.848	"	5F09	Quad 3Q84
7278.0	-39.416	"	5D09	Quad 3Q84
7281.0	-39.358	"	Possible Vernier	
7291.0	-39.166	"	Enc. 109 wall	
7455.0	-36.014	"	Enc. 111 wall	
7491.0	-35.322	"	Enc. 111 wall	
7686.0	-31.574	"	Enc. 113 wall	
7841.0	-28.595	"	Enc. 113 wall	
7848.0	-28.461	"	Lab "E" wall	
7913.0	-27.117	"	5WLE-1	Bend 4-2-240
7935.0	-26.135	"	5WLE-2	Bend 4-2-240
7948.0	-25.320	"	Lab "E" wall	
8279.0	- 2.139	"	Lab "C" wall	
8300.0	- 0.667	"	Lab "C" (Aim Point)	